

NEPA Environmental Assessment Sailors Haven Channel Dredging Project Fire Island National Seashore



Prepared for:

**United States Department of the Interior
National Park Service
Fire Island National Seashore
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SECTION 1.0 INTRODUCTION

This Environmental Assessment (EA) identifies, describes, and analyzes the potential impacts from the maintenance dredging of 1,500- 2,000 cubic yards of material from the channel leading into the Sailors Haven Marina on Fire Island, in the Town of Brookhaven, Suffolk County, New York. Sailors Haven Marina and Visitor Center and the adjacent Sunken Forest are owned by the National Park Service (NPS) and part of the Fire Island National Seashore (FIIS). Dredging is required as a result of sand drifting and settling around the entrance of the marina and creating a navigational safety hazard. Approximately one-third of the channel was impassible to boat and passenger ferry traffic during the summer of 2007 and it has been estimated by NPS staff that the channel may be completely impassible during the 2008 season. This condition is unacceptable. The marina provides the primary public access to the Sailors Haven Visitor Center, an important interpretive orientation point for the Sunken Forest. The Sunken Forest is a unique natural resource that represents one of the last remaining maritime forests on the east coast. Every year, from 60,000 to 100,000 people use the facilities at Sailors Haven, which include the visitor center, boardwalk trails, lifeguarded beach and showers, and concession-operated marina, snack bar and convenience store.

Maintenance dredging in this area has become necessary in recent years due to erosion at each end of the marina bulkheads. The accretion process escalates with strong storm, wind and/or ice events in which the eastern movement of the current in Great South Bay (GSB) transports additional sediment into the channel. Dredging of this area last occurred in 2002 following an Environmental Assessment dated August 6, 2001. Channel dredging was proposed and permitted as part of the Environmental Assessment for the Rehabilitation of Sailors Haven Marina and Ferry Dock completed in March 2005, however, funding was not available to complete channel and channel entrance dredging. The build up, therefore, represents five years of sand accretion. The project has subsequently received funding and is the subject of this EA. There is an expectation that sand deposition will continue to occur in a similar pattern well into the future necessitating additional dredging operations. For this reason, NPS is proposing routine dredging of the channel every 2-4 years, as needed, given the availability of funds.

The proposed project will be covered under USACOE Permit No. 2001-01329 (which expires 11/17/07) and NYSDEC Permit No. 1-4722-04114/00004, (which expires in 2012) and the Town of Brookhaven Permit #2001-1901-01 (no expiration). The only modification to the existing permits is that the dredged material will be stockpiled in the picnic areas alternately on the west and east side of the marina. The dredged material was originally intended as shoreline backfill to assist in stabilizing the erosion process along the bay side of the Sunken Forest. However, engineers have since calculated that there is not enough material to conduct this pilot project. It is important to NPS to retain all bayside channel dredging materials within the bays. Due to the high primary and secondary dunes in the Sailors Haven/Sunken Forest area, cross-island transport of sediment has been reduced in this location over the past few centuries. The construction of bulkheads and dredging of the channel in historic times have further affected/accelerated shoreline erosion at this time.

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While bayside dredging is needed for safe and adequate access to Fire Island National Seashore, responsible dredge material disposal is critical. Therefore, dredged material will be stockpiled near the bay shoreline until protocols are established and enough material is available for use in a future backfill or shoreline restoration project at Sailors Haven.



* Not to scale



* Not to scale



* Not to scale

Figure 1
Regional and Project Location Map



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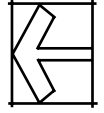
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Figure 2
Fire Island National Park Lands



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SECTION 2.0 PURPOSE AND NEED FOR ACTION

2.1 Project Location

Fire Island is a 32-mile long barrier island running parallel to the Atlantic side of Long Island bounded by Moriches Inlet to the east, and Fire Island Inlet to the west. Fire Island forms the southern border of the Great South Bay (GSB), once one of the most productive shellfish and seafood estuaries on the Atlantic coast. Figure 1 illustrates the project's location from the regional and local perspective. The National Park Service (NPS) owns and manages a patchwork of lands on the island, interspersed with seventeen small pre-existing communities and flanked by Smith Point County Park (within park boundaries) to the east and Robert Moses State Park (outside of the park) on the west. Figure 2 illustrates the project's location in relation to the hamlets, parks and marinas on Fire Island.

The Fire Island National Seashore manages the Sailors Haven Visitors Center, one of four NPS visitor contact facilities on the island. Sailors Haven consists of a ferry landing, marina for 50-60 boats (48 public slips), beach, snack bar, visitor center, seasonal government housing, and a boardwalk trail through the Sunken Forest. The Sunken Forest represents a unique maritime forest where soil and climate conditions are ideal for the continued perpetuation of its three dominant trees: American holly, shadblow, and sassafras.

The NPS recognizes that the erosion occurring along the Sunken Forest shoreline is resulting in a significant loss of sand, trees, and other vegetation. The NPS is mandated to protect this unique resource through enabling legislation (Public Law 88-587), which states:

The area known as Sunken Forest shall be preserved from bay to ocean in as nearly its present state as possible, without developing roads therein, but continuing present access by those trails already existing and limiting new access to similar trails limited in number to those necessary to allow visitors to explore and appreciate this section of the seashore.

2.2 Project Need

The proposed project is necessary in order to relieve an immediate safety and navigational hazard. The build up of sand and sediment in the Sailors Haven Marina (Marina) channel has created a shallow water situation, which impairs the passage of boats, and passenger ferries. The project proposes to dredge approximately 1,500-2,000 cubic yards of material representing an area approximately 250 feet long and 120 feet wide. The goal is to attain a depth of six feet at low tide. The NPS will contract services with a private contractor to dredge the material in the channel. To minimize environmental impacts, the contractor will utilize a clamshell-dredging machine.

2.3 Project Objectives

The Fire Island National Seashore (FIIS) 1978 General Management Plan (GMP) identified the following management objectives relative to the Sunken Forest:

- © Continue special protection for the old maritime holly forests of the Sunken Forest;
- © Manage the Sailors Haven developed area as a center for natural history interpretation and recreation.

The main objective of the project is to maintain a safe navigation route for boat traffic and passenger ferry, by removing sediment from that portion of the channel that has decreased in depth and width in the past five years. A secondary objective (not part of this EA) is to accumulate enough material in which to be able to conduct an erosion rehabilitation project along the Sunken Forest shoreline immediately adjacent and west of the Marina.

2.4 Scope of the EA

The scope of the EA is limited to a discussion of the issues and impacts that led up to the proposed project and are related to the short and long-term impacts from channel dredging. An interdisciplinary team consisting of FIIS employees, a coastal marine ecologist with NPS, a representative from USFWS, two representatives from the NYSDOS, and representatives of the consultants preparing the EA conducted scoping.

The following potential impacts are reviewed in Section 4.0: Soil and Shoreline Erosion Issues; Littoral Processes; Water Quality; Fisheries and Habitat; Floodplains and Wetlands; Species of Special Concern; the Sunken Forest; Wildlife; Vegetation; Historic and Cultural Resources; Socioeconomic Environment; Visitor Use and Experience; Public Safety and Access; Unavoidable Adverse Impacts; and Cumulative Impacts.

2.5 Relationship to Other Previous Planning Efforts

The entrance channel to the Marina was dredged in May 2002 (August 2001 EA) to restore the channel depth to a depth of six feet at low tide. The limitations of the dredging were 1,000 feet out from the Marina and 120 foot wide swath from the center of the channel. Approximately 1,000 cubic yards of material was deposited behind the existing bulkheads to replenish the sediments that had eroded at the point where the bulkhead meets the shoreline. The EA anticipated the need for additional dredging from the channel every three years or more.

In March 2005, an EA was prepared for the Rehabilitation of Sailors Haven Marina and Ferry Dock. This EA described a project that would rehabilitate and upgrade the Marina's bulkheading and surface decks plus dredge the Marina basin. Additional dredging was proposed for the entrance channel out 1,000 feet to a width of 120 feet and a depth of six feet below mean low water. This activity, while approved, was not carried out due to the lack of sufficient funding.

2.6 Sustainability and Long-Term Management

The NPS continues to seek a long-term solution to the beach erosion occurring at and adjacent to the area where the bulkhead east and west of the Marina meets the shoreline. Erosion, resulting from both natural and manmade causes, continually occurs in the area of Sailors Haven, eroding the sediment (especially from the west side) and moving it into the access channel. This sand

accretion results in the need to dredge the access channel every 2-5 years. The NPS is investigating developing a future shoreline restoration project on both sides of the marina. An option that was in the 2004 plan called for creating a restoration project through the placement of coir logs or biologs and sand fill to stabilize the shoreline beginning at the Sunken Forest, which represents the area of the highest impact. Native wetland vegetation would be planted on the new sand banks. The project associated with this EA will not generate enough dredged material to construct this perched beach. No plans have been considered to return this dredged material to the bayside littoral drift system due to the potential complications from removing and then returning large quantities of sand to the bay ecosystem. Therefore, it is proposed that the material be stockpiled until enough is generated in subsequent dredging projects to carry out the shoreline restoration project.

Before any future restoration project is attempted, the NPS will convene a task group to look at all viable options. These options will then be carried forth in a subsequent NEPA Impact Analysis.

SECTION 3.0 ALTERNATIVES CONSIDERED

3.1 Introduction

This section describes the potential alternative actions that are under consideration or have been considered but dismissed as impractical. All alternatives must meet the purpose and need for the proposed action and be consistent with the purpose and objectives of FIIS. There are three alternatives evaluated in this EA – the No Action Alternative, and Alternative A and B. Alternatives considered but dismissed are found in Section 3.6.

3.2 No Action Alternative

The No Action Alternative would result in a perpetuation of the existing condition. This condition is unacceptable since it will decrease channel navigability until the channel becomes impassable. Boat and ferry access into the Marina represents the primary method of access into the Sailors Haven Visitor Center and the Sunken Forest. If the channel is closed, the 60,000 - 100,000 annual visitors, including 5,000 -10,000 school children, would not have access to this important natural resource. In addition, the NPS derives a portion of its management funds from the marina, snack bar and gift shop. Figure 3 depicts the locations of all structures at the Sailors Haven Marina including the ferry pier, bulkheads, breakwaters, walkways, and buildings.

3.3 Alternative A - Place Dredge Materials on East Side

Alternative A calls for an area approximately 120 feet wide and 250 feet long to be dredged to a depth of six feet at mean low water using the clamshell dredging method. An estimated 1,640 cubic yards of material will be placed on the east side of the Marina in the picnic area and graded into low areas on the site resulting in no noticeable visible elevation change to the picnic area. Dredging would take approximately 30 days to complete and will occur between October 2007 and January 2008. Figure 4 illustrates the results of the underwater survey. The channel that needs dredging to a point of 6 feet below low water is highlighted on the map.



PICNIC AREA ON EAST SIDE OF SAILORS HAVEN MARINA

3.4 Alternative B – Routine Channel Dredging Over Multiple Years

Alternative B is the same as Alternative A, except that it allows multiple dredge projects over a period of 10 years. This series of projects would occur on an as needed basis. The dredged material, 1,000-3,000 cubic yards per event, will be placed alternatively on the east and west sides of the Marina in the picnic areas. The material generated from each event will be graded into low areas on the site resulting in no noticeable visible change to the area. The significant benefit of this alternative is that each individual event would not require an additional EA.

Another benefit is that the dredged materials could be safely and innocuously stockpiled in areas that serve both as sitting beaches and as bulkhead stabilization components. Over time, the materials will increase to the point where there is enough material to commence construction of a shoreline restoration project just west of the Marina. The restoration project, while not part of this application, is part of the long-term management strategy of NPS/FIIS to stabilize the shoreline areas that have eroded in recent years. At the time when there is enough material to implement the restoration project, a new environmental assessment will be prepared. Figure 5 illustrates the general area of the dredging and the locations for the placement of the dredged material at the Sailors Haven Marina.



PICNIC AREA ON WEST SIDE OF SAILORS HAVEN MARINA

3.5 Environmentally Preferred Alternative

The Environmentally Preferred Alternative is the alternative that will promote the national environmental policy expressed in NEPA. It represents the alternative that would cause the least damage to the biological and physical environment, and best protects, preserves, and enhances historic, cultural, and natural resources. Alternative B – Routine Channel Dredging Over Multiple Years has been selected as the Environmentally Preferred Alternative. Alternative B meets the primary objective of removing the materials that are silting in the entrance to the Marina.

3.6 Alternative Considered But Rejected

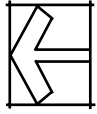
Dredge Entire Channel

This alternative would involve dredging approximately 4,000 cubic yards of material, representing a swath of 1,000 feet long by 200 feet wide, out from the marina breakwater. This action would inhibit the drifting and re-silting of material from the immediate adjacent areas, delaying the need to re-dredge the channel by a longer period. This alternative is cost prohibitive. The amount of funding necessary to conduct a project of this scale is not available. This alternative is unfeasible and, therefore, was rejected.

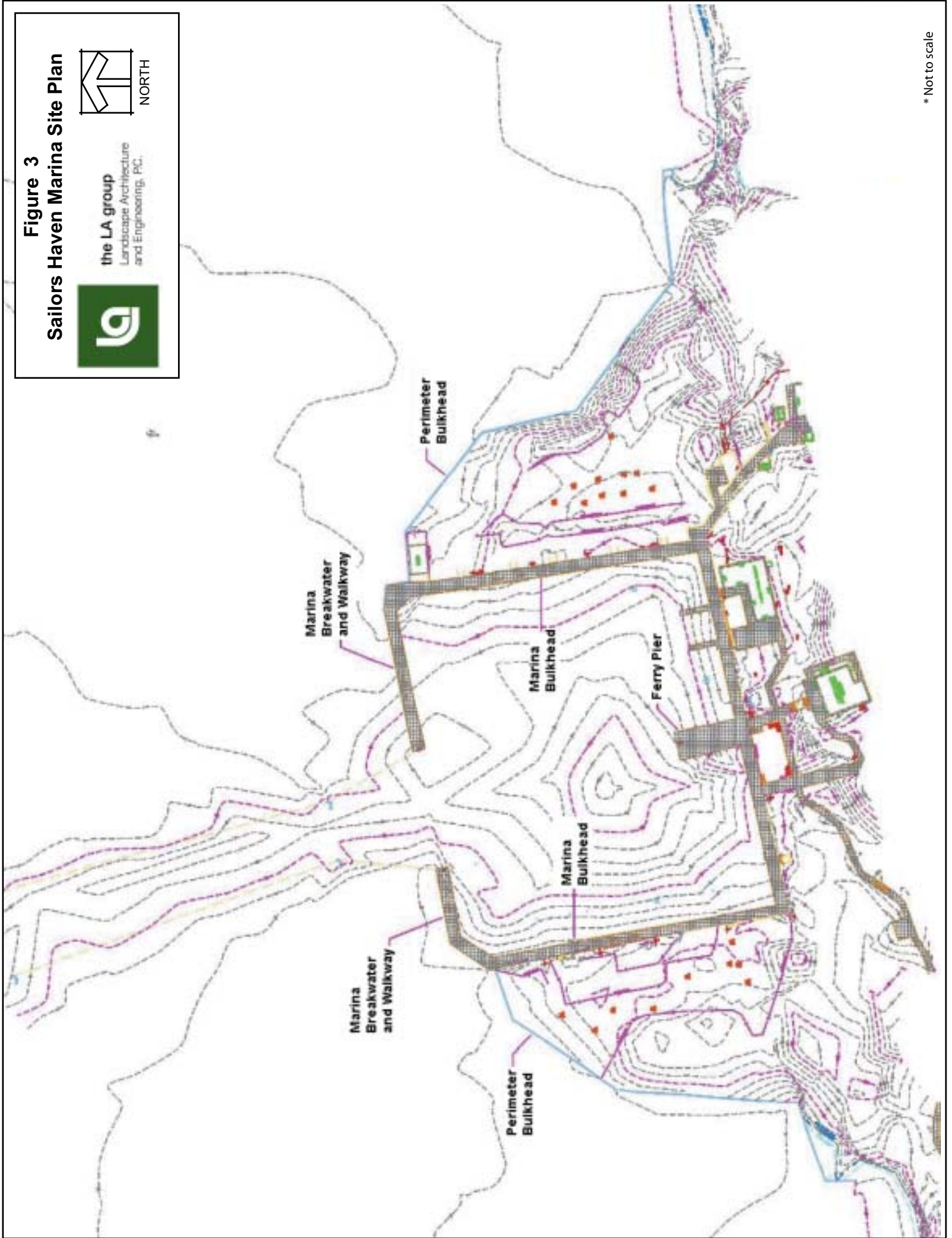
Figure 3
Sailors Haven Marina Site Plan



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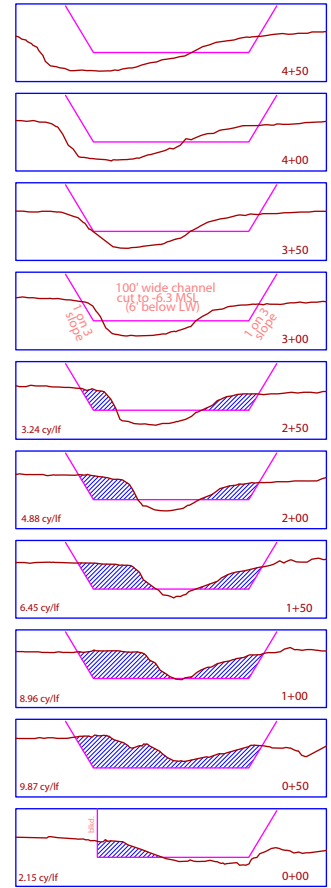


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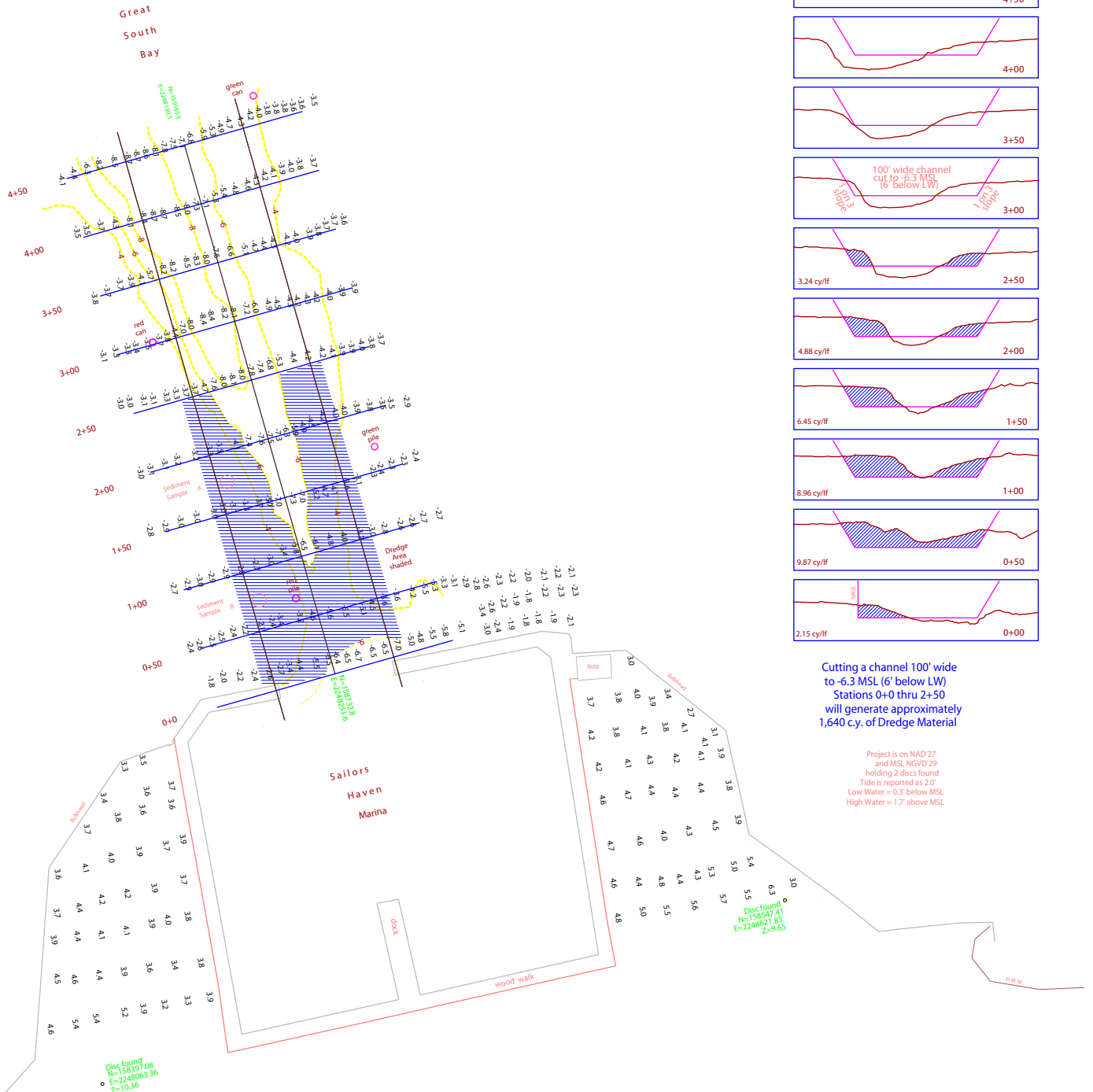
* Not to scale

Cross Sections
facing north



Cutting a channel 100' wide to -6.3 MSL (6' below LW) Stations 0+0 thru 2+50 will generate approximately 1,640 c.y. of Dredge Material

Project is on NAD27 and MSL-NGVD29 holding 2 discs found Tide is reported as 2.0' Low Water = 0.3' below MSL High Water = 1.7' above MSL



* Not to scale

Figure 4
Underwater and Shoreline Survey Map

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and Engineering, P.C.

NORTH
1" = 50'

Prepared for: Fire Island National Seashore
Prepared by: Sea Level Mapping
Aquebogue, NY 11931

Situate: Sailors Haven Suffolk County, NY
Datums: NAD'27 & MSL-NGVD'29
Tide: 2' +/- Surveyed: 09-06-07
G:\07070\Enviro\NEPA\Graphics\Hydrographic Map



Legend



-  Dredge Area
-  Stockpile Sites

Figure 5
Proposed Dredging Plan

 the LA group
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and Engineering, PC

 NORTH

0 50 100 200 Feet

September 14, 2007 Z:\07070\gis\Dredging_Plan

SECTION 4.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

Boundary of Analysis Area

The boundary for the analysis is the entire Sailors Haven Marina and Visitor Center, the Sunken Forest and the adjacent area of the GSB out a distance of 1,000 feet from the shoreline.

Environmental Impact Topics

The following list of impacts are considered in Section 4.0: Soils and Shoreline Erosion Issues; Littoral Processes; Water Quality; Fisheries and Habitat; Floodplains and Wetlands; Species of Special Concern; the Sunken Forest; Wildlife; Vegetation; Historic and Cultural Resources; Socioeconomic Environment; Visitor Use and Experience; Public Safety and Access; Unavoidable Adverse Impacts; and Cumulative Impacts.

Methodology for Impact Assessment

Under NPS policy, the alternative analyzed that would be most beneficial for the environment or have the least adverse impacts should be identified. Of the alternatives selected, the Preferred Alternative is also the Environmentally Preferred Alternative.

For the purposes of this analysis, intensity or severity of the impact is defined as follows:

- © Negligible: Impact to the resource or discipline is barely perceptible and not measurable, generally confined to a small area or a point in time.
- © Minor: Impact to the resource or discipline is perceptible and may be measurable, generally impact is confined to specific areas within the site.
- © Moderate: Impact is clearly detectable and could have appreciable effect on the resource or discipline throughout the site.
- © Major: Impact would have a substantial, highly noticeable influence on the resource or discipline throughout the site and surrounding lands.
- © Positive: Impacts would promote the preservation of the resource.

4.2 Soils and Shoreline Erosion Issues

A. Affected Environment

The material to be dredged from the entrance channel is primarily sand. To more precisely ascertain the type, size and quality of material to be dredged, a sieve analysis was conducted for the project. The sieve test is used to classify the soil in engineering classifications and to make judgments on soil properties and performance. In this case, the purpose of the sieve test is also to assess the quality of the soil as temporary fill in the picnic areas, and future fill for bank stabilization at the Sunken Forest. The larger the particle, the more stable and less prone to siltation. This makes it more desirable for the use as backfill in the area behind the perimeter bulkheads.

The sand classifications recognized are very course, coarse, medium, fine, very fine, and total. Since most sand is composed of rock fragments and minerals, the sand is chemically inactive, and, therefore, safe for human contact and as use as beach sand. Two grab type soil samples were taken during the month of September 2007 in the proposed dredging area. The samples indicate that 95% and 97% of the material is composed of medium, course, and very course sand. This material is rated excellent to good for use as a subgrade material.

The sandy areas, representing the picnic areas located just east and west of Sailors Haven Marina, are filled land that is composed of material collected and deposited there from various past channel and marina basin dredging operations. These areas are contained by the perimeter bulkheads, which also serve to protect the integrity of the marina bulkheads. The soils support very little vegetation and are primarily used as beach sitting and picnic areas for visitors. School group activities and interpretive programs, such as seining, are conducted along the shoreline at these sites.

B. Environmental Impacts

No Action Alternative

No impacts are anticipated.

Alternative A

The one time dredging of the channel will result in the material being spread into the existing sand base on the east side of the Marina between the marina bulkhead and perimeter bulkhead. Since this has previously been utilized for the placement of dredged materials and other fill, there is no anticipated impact to soils from this process.

Alternative B

Multiple dredging operations, necessary to keep the channel clear over a longer period of time, will result in the dredged material being spread alternatively into the existing sand base on the east and west side of the Marina between the marina bulkhead and perimeter bulkhead. Since both of these areas have previously been utilized for the placement of dredged materials and other fill, there is no anticipated impact to soils from this process.

4.3 Littoral Processes

A. Existing Conditions

Littoral transport is the movement of sand, gravel, sediment, and organic material in the littoral zone. This movement naturally creates a dynamic system of sand transport, which results in beach erosion or accretion. The system along the north shore of Fire Island has been disrupted by the presence of marinas and artificial bulkheads. Some marina basins and most vessel channels act as sediment sinks that hold laterally transported sand and draw down the sediments behind and around the marina bulkheads.

At Sailors Haven, the existing perimeter bulkheads were replaced in 2005 as part of the Sailors Haven rehabilitation project. The terminus of the bulkheads on both the east and west sides are

in poor condition. The structure at Sailors Haven has also caused there to be an unusual amount of erosion along the edge of the Sunken Forest, resulting in a significant loss of upland along the GSB shoreline. There is evidence that the shoreline is continually receding in the amount of 12-24 inches annually.

Long-term solutions are being sought to address erosion related issues along the Sunken Forest. In keeping with the management mandates of FIIS to protect the Sunken Forest resource, the NPS is investigating developing a future shoreline restoration project on both sides of the marina. No definite plan has been developed at this time. The project associated with this EA will not generate enough dredged material to perform a restoration project. Therefore, it is proposed that the material be stockpiled until enough material is generated in subsequent dredging projects to carry out the shoreline restoration project.



SUNKEN FOREST EDGE WEST OF SAILORS HAVEN MARINA

B. Environmental Impacts

No Action Alternative

Littoral processes represent complex systems and are, therefore, complicated to predict. Unless the perimeter and marina bulkheads are removed, it is not likely that there will be any change in the existing patterns of shoreline erosion to the east and west of Sailors Haven.

Alternative A

A single dredging operation will only take sand once and will not allow for enough stockpiled material needed for future restoration efforts. The existing sandy area between the marina bulkhead and the perimeter bulkhead “leaks” sand into the west side of the marina area. The sand generally appears to drift into the channel and accumulate. Without a corresponding project to protect the shoreline immediately west (priority) and east of the marina, removal of the material will likely not counteract the shoreline erosion process, and will temporarily remove material from the bayside sediment budget. This will therefore result in a moderate environmental impact.

Alternative B

Repeated dredging of the entrance channel will result in the stockpiling of dredged materials from numerous dredging actions. This slow buildup will allow the mass of materials to build to the point in which there could be enough to commence a restoration project. The actions will not likely counteract the shoreline erosion process, and will temporarily remove material from the bayside sediment budget. This will therefore result in a moderate environmental impact.

4.4 Water Quality

A. Existing Conditions

The waters of the GSB are within a region where salt and fresh waters mix. Tidal mixing, vertical mixing, bottom scouring and sediment suspension influence the water quality of the GSB. These conditions are caused by currents, precipitation events, biological and chemical oxygen demand, phytoplankton production, and water temperature. Long-term water quality in the general open waters of GSB has been adversely affected by land use activities and by inflow from tributaries along the southern shore of Long Island. However, the fact that Sailors Haven is isolated from development and virtually surrounded by vegetation has the positive effect of limiting the amount of nutrient load to the general area.

Suffolk County has monitored water quality throughout the Great South Bay since 1976. The comprehensive water quality base generated by the County’s Department of Health Services reports water clarity and dissolved oxygen data at more than adequate levels for Sailors Haven (Station 150; Suffolk County, 1999). Other water quality partners in the GSB include the USGS, NYSDEC, Town of Hempstead, and Nassau County.

Suffolk County Department of Health Services began monitoring fecal and total coliform levels at Sailors Haven Marina in 1991. It is not an area of high priority since there is no swimming beach located on the bay side of Sailors Haven. A report by McNulty (1989) concluded that sewage discharges from boats are primarily responsible for elevated counts. This condition may be continuing to occur even though Sailors Haven has a free pump-out facility that is available to the public. The Marina is exposed to a fair amount of circulation and flushing which helps disperse bacteria in the water. Nevertheless, the quality of the water in and around the Fire Island waters is a growing concern. As part of an NPS inventory and monitoring program, FIIS to monitor long-term trends in estuarine eutrophication and nutrient loading in GSB.

B. Environmental Impacts

No Action Alternative

The Marina would eventually have to close if the proposed dredging does not occur. Without convenient access to the public pump-out facility, boats at anchor in the vicinity of the present marina may elect to release effluent from their heads, which would potentially elevate coliform levels and lower the water quality in the immediate adjacent area. No other water quality impacts are anticipated.

Alternative A

The dredging of the entrance channel will create temporary increases in turbidity and a corresponding loss of water clarity and lower dissolved oxygen in the vicinity of the channel. The entrance channel is subjected to a fair amount of circulation and flushing which will limit these impacts to short-term adverse moderate impacts to water quality.

Alternative B

The dredging of the entrance channel every 2-3 years in virtually the same area will create localized and temporary increases in turbidity and a corresponding loss of water clarity and lower dissolved oxygen in the vicinity of the channel. Because each operation is individual and there is ample recovery time, there is no cumulative water quality issue anticipated. Each dredging operation, therefore, will result in short-term adverse moderate impacts to water quality.

4.5 Fisheries and Essential Fish Habitat

A. Existing Conditions

The shallow waters of the GSB have been named *essential fish habitat* (ESF) due to its highly productive and regionally significant habitat for marine finfish, shellfish and wildlife. Congress mandated that waters that are declared ESF must be managed to conserve and manage these habitats. The greatest threat to the quality of GSB and the EFH is the elimination or alternation of tidal marsh, intertidal areas and dune habitat, degradation of water quality, over fishing, and increased human presence near breeding grounds. Increased sources for non-point source runoff are a major concern in the decline of the flounder fishery as well as many other species (GSB #16).

The Sailors Haven area serves as potential spawning and nursery grounds for a number of finfish species that are estuarine dependent during at least one life stage including: weakfish (*Cynoscion regalis*), winter flounder (*Pseudopleuronectes americanus*), summer flounder (*Paralichthys dentatus*) and blackfish (*Tautoga onitis*). The species of concern that could utilize the habitat around the Sailors Haven Marina are reported in Table 1.

Table 1
Fish Species of Concern

Common Name	Scientific Name	Eggs	Larvae	Juveniles	Adults
Atlantic Butterfish	<i>Peprilus triacanthus</i>	June-August	-	-	-
Bluefish	<i>Pomatomus saltatrix</i>	-	-	May-October	July-November
Summer Flounder	<i>Paralichthys dentatus</i>	-	-	Year Round	April-November
Windowpane	<i>Scophthalmus aquosus</i>	March-November	March-November	Year Round	Year Round
Winter Flounder	<i>Pseudopleuronectes americanus</i>	November-April	November-June	Year Round	Year Round

Source: March 2005 EA for Rehabilitation of Sailors Haven Marina and Ferry Dock.

The benthic community serves as an essential part of the food chain for local fish populations. A survey of this resource documented a moderately diverse benthic community (EEA, 2002). The benthic habitat in the area to be dredged is a sandflat habitat comprised characteristically of populations of polychaetes (*Platynereis dumerillii*), feather-duster worm (*Sabella microphthalma*), opal worm (*Arabella iricolor*), and common bamboo worm (*Clymenella torquata*), bivalves such as northern quahog (*Mercenaria mercenaria*), Morton's egg cockle (*Laevicardium mortuni*), slipper shell (*Crepidula fornicate*), and blue mussel (*Mytilus edulis*), and mud crab (*Dyspanapeus sayi*).

B. Environmental Impacts

No Action Alternative

No impacts are anticipated.

Alternative A

To minimize and control turbidity, sediment controls will be installed and maintained along the perimeter line of the area to be dredged consistent with best management practices. The majority of the materials in the area to be dredged are comprised of sandy soils and this composition will control turbidity as well. The dredging will result in the removal of approximately 2,300 square meters of surface area of benthic habitat including any sedentary organisms associated with bottom sediments. Most motile organisms would have the ability to avoid the dredge. According to NMFS, the recolonization of the dredged area might be re-established as soon as one month.

Nevertheless, because this area has been disturbed through periodically dredging, it is not believed to be an important habitat area for local populations.

Alternative B

Environmental impacts for Alternative B are virtually the same as those associated with Alternative A. Multiple dredging operations to keep the channel open over a longer period of time may decrease the chances of marine life utilizing the area for nesting or as a nursery. The repeated dredging of the same area may result in the decreased quality of the benthic community, however, this is a non-issue since it is not believed to be an important habitat area for local populations.

4.6 Floodplains and Wetlands

A. Existing Conditions

Floodplains

Fire Island is located within the 100- year tidal floodplain. Executive Order 11988, “Floodplain Management”, requires all federal agencies to reduce the risk of flood loss and to minimize the impact of floods on human safety, health, and welfare. Certain activities within the 100-year floodplain require the preparation of a Statement of Findings (SOF). However, dredging is not an activity that requires preparation of an SOF.

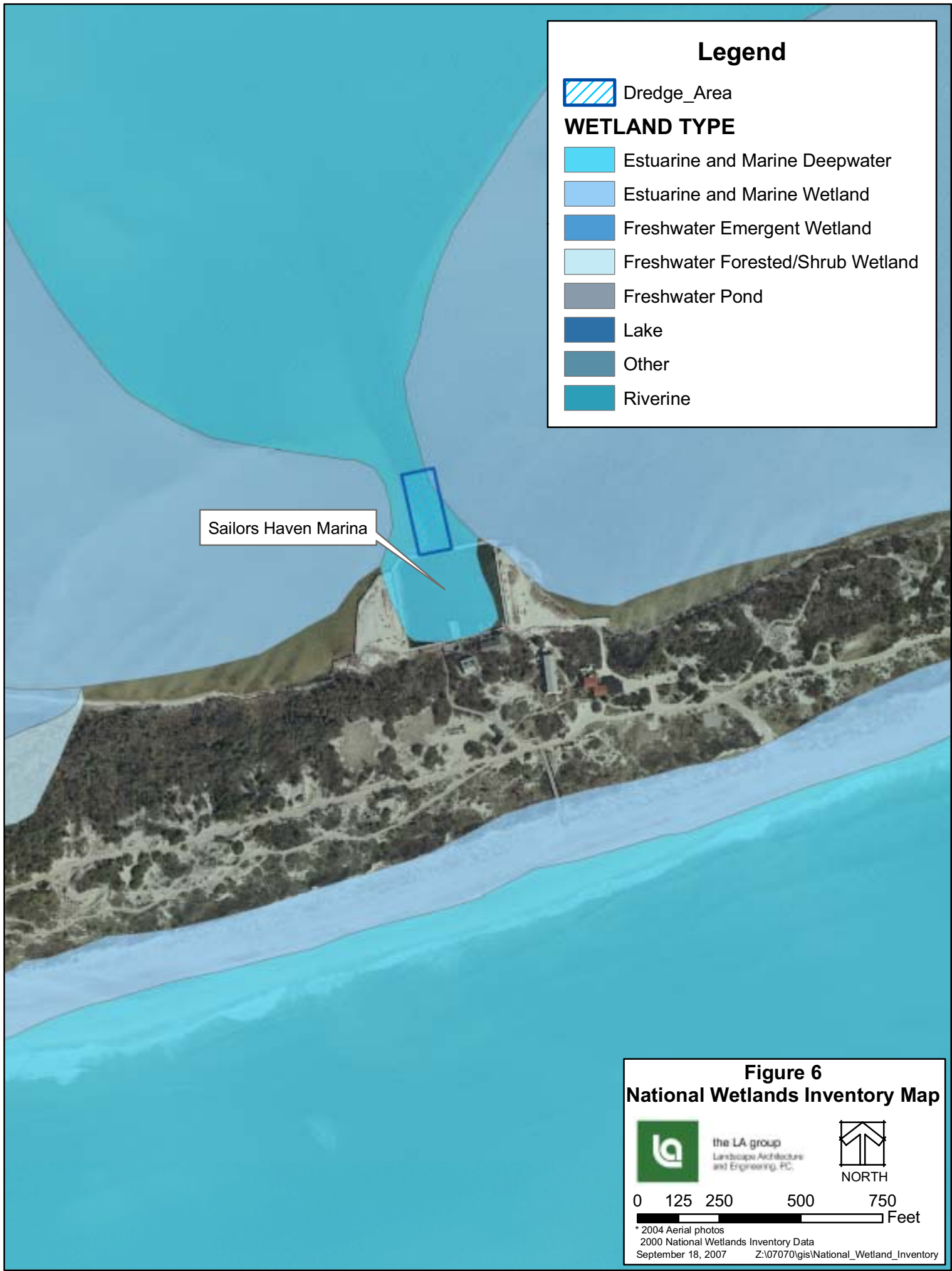
Wetlands

Based on National Wetlands Inventory (NWI) mapping, there are two wetland types in the project area (Figure 6). NWI wetland classifications are based on the system developed for the USFWS. Most of the marina channel is classified as estuarine, subtidal, unconsolidated bottom permanently flooded (E1UBL). The shoreline stabilization areas east and west of the channel are classified as estuarine intertidal, irregularly exposed (E2USM). Under NPS criteria, unvegetated tidally influenced beaches, such as the shoreline stabilization area, are considered wetlands, while permanently inundated areas, such as the marina channel are considered deepwater habitats. Both of these areas would be regulated under NYSDEC tidal wetland regulations, which would consider unvegetated tidally influenced areas (i.e., beaches) as “coastal shoals, bars or mudflats,” and areas permanently inundated (to a depth of 6 feet mean low water) as “littoral zone” wetlands.

Although sandy beaches do not meet the USACOE definition of a jurisdictional wetland, all beach areas below the high tide line are considered jurisdictional waters of the U.S. Permanently flooded marine habitats in the project area would also be considered jurisdictional waters. These areas would be subject to the USACOE regulatory program under the Clean Water Act of 1972, as amended, and the rivers and Harbors Act of 1899, as amended.

There are approximately 0.535 acres of estuarine subtidal wetlands (E1UBL) or deepwater habitat within the project area and 0.035 acres of estuarine intertidal wetlands (E2USM). There are no vegetated tidal or nontidal wetlands within the proposed impact area. Figure 6 illustrates the various wetland types in and around Sailors Haven Marina.







In accordance with NPS 77-1, a “Statement of Findings” is required for certain actions that cause the loss of wetlands. However deepwater habitats, as defined in “Classification of Wetlands and



Legend

 Dredge_Area

WETLAND TYPE

-  Estuarine and Marine Deepwater
-  Estuarine and Marine Wetland
-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond
-  Lake
-  Other
-  Riverine

Sailors Haven Marina

Figure 6
National Wetlands Inventory Map



the LA group
Landscape Architecture
and Engineering, PC.



NORTH

0 125 250 500 750
Feet

* 2004 Aerial photos
2000 National Wetlands Inventory Data
September 18, 2007 Z:\07070\gis\National_Wetland_Inventory

Deepwater Habitats of the United States” (Cowardin *et al.* 1979) according to USFWS methodology are not subject to NPS 77-1. In addition, projects intended to restore degraded wetlands, or ecological processes are exempt from Statement of Findings requirements, provided they do not result in more than 0.25 acre of adverse, long-term wetland impacts.

B. Environmental Impacts

No Action Alternative

No impacts are anticipated.

Alternative A

The dredging portion of this project would have a negligible impact on floodplains or wetlands. The placement of the dredge material on the east side of the picnic area would not impact floodplains or wetlands.

Alternative B

The repeated dredging of the channel on an as needed basis would have no impact on floodplains or wetlands.

4.7 Species of Special Concern

A. Existing Conditions

To ascertain the potential presence of species listed as threatened or endangered in the region, the following agencies were consulted: US National Marine Fisheries Service (NMFS), US Fish and Wildlife Service, and NYDEC Natural Heritage Program. Table 2 indicates the agency and whether the species is considered threatened or endangered by that agency.

Table 2
Threatened and Endangered Species

Common Name	Species Name	Concerned Agency	Status*
Piping plover	<i>Charadrius melodus</i>	USFWS, NYSDEC	FT, SE
Roseate tern	<i>Sterna dougallii</i>	USFWS	FE, SE
Common tern	<i>Sterna hirundo</i>	NYSDEC	ST
Least tern	<i>Sternula antillarum</i>	NYSDEC	ST
Loggerhead turtle	<i>Caretta caretta</i>	USNMFS	FT, ST
Kemp’s ridley turtle	<i>Lepidochelys kempii</i>	USNMFS	FE, SE
Green sea turtle	<i>Chelonia mydas</i>	USNMFS	FT, ST
Leatherback sea turtle	<i>Dermochelys coriacea</i>	USNMFS	FE, SE
Hawksbill turtle	<i>Eretmochelys imbricata</i>	USNMFS	FE
Seabeach amaranth	<i>Amaranthus pumilus</i>	USFWS, NYSDEC	FT, SE
Seabeach knotweed	<i>Polygonum glaucum</i>	NYSDEC	SR
Golden dock	<i>Rumex fueginus</i>	NYSDEC	SE

*FE: federally endangered; FT: federally threatened; SE: state endangered; ST: state threatened; SR: rare.

Piping plovers have been documented as nesting and foraging in many locations throughout the Park. However, there is no nesting habitat known to be located within one-quarter mile of the site. In addition, park rangers have not observed piping plovers in the vicinity. This is likely due to the fact that preferred foraging and nesting habitat is on the ocean side, and the amount of human and boat activity at the Marina is less than ideal for plover activities. Piping plovers arrive in mid-March and commonly nest on the beaches, foredunes, and overwash areas from mid-April through July. To minimize potential threats to forage areas, no dredging will occur between June 1 and September 1.

The U. S. Fish and Wildlife Service lists the least tern population found in the interior U. S. as endangered; on the coast, the species is listed as New York threatened. Around the turn of the century, the least tern was in danger of extirpation in the northeastern U. S. because of hunting for the millinery trade. Protective legislation in 1918 allowed the species to recover in the 1920s and 1930s. In recent years, however, human pressures have been causing a decline in populations of this species. Surveys from 1985-1995 found an average of approximately 3,000 breeding pairs at between 50 and 66 colonies along New York's Long Island coast. Development of coastal areas destroys breeding habitat and recreational activities can disrupt reproduction. Increases in populations of more aggressive gulls have led to competition for nesting sites. Some colonies are severely limited by predation from rats, great horned owls, black-crowned night herons, foxes and domesticated animals. Bald eagles (*Haliaeetus leucocephalus*) are occasionally sighted on Fire Island. While bald eagles have been removed from the federally threatened list, they continue to be protected by the 1940 Bald and Golden Eagle Protection Act.

There are four species of federally threatened or endangered sea turtles that may be found seasonally in the waters off the south shore of Long Island. The sea turtles in the northeastern nearshore waters are typically small juveniles from May 1 to November 30. Sea turtles spend most of their time on harbors and estuarine waters during this time. Leatherbacks are typically found in open water but will move to inshore waters while pursuing jellyfish prey.

There are also several species of federally endangered whales that may be found seasonally off the Long Island coast. There are no species of whales that commonly come into GSB, however, the fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*) and northern right whale (*Eubalaena glacialis*) are species that may occur in the waters offshore of Fire Island.

The Natural Heritage Report on Rare Species indicates that several vascular plant species have been documented in the vicinity of the project site. Although their current status is unknown, the habitat may remain and their occurrence in this location may still be viable. State listed endangered plants include: seabeach amaranth (*Amaranthus pumilus*), which is also on the Federal list as threatened, and golden dock (*Rumex maritimus fueginus*). Seabeach knotweed (*Polygonum glaucum*) is on the State Rare Species list.

The highest threat to species that are in decline is the elimination or alteration of ocean beach/intertidal habitat. Elimination and/or disturbance to critical nesting habitat is a concern for wildlife and vegetation that is threatened or endangered.

B. Environmental Impacts

No Action Alternative

No impacts are anticipated.

Alternative A

The project is not expected to adversely affect any threatened or endangered species in the vicinity of the project. See letter of “no adverse impact” from the NMFS in Appendix B. Specifically, the project will not result in the elimination of important foraging or nesting habitat for endangered or threatened sea birds. Bald eagles have never been sighted in the vicinity of the Marina. Endangered whales are only found in deep offshore waters, therefore, are not threatened. Sea turtles are not typically observed in the vicinity of the Marina. In the unlikely chance they are in the vicinity, they have the capacity to avoid the clamshell dredge by swimming away from the area. State listed endangered plants are found on the oceanside portion of Sailors Haven and no plants have been observed in the vicinity of the project.

Alternative B

Impacts for Alternative B are essentially the same as Alternative A. The long-term intention of FIIS is to reduce erosion in the upper and lower foreshore areas by replenishing the intertidal zone thereby increasing seabird foraging areas.

4.8. Places of Special Concern

A. Existing Conditions

Maritime Holly Forest

The Sunken Forest represents a moderate-sized, old growth maritime holly forest in excellent condition. The Sunken Forest is a unique resource that is ranked globally as G1/G2 - critically imperiled/imperiled globally because of extreme rarity throughout its range, and as ranked by NYS as S1 – considered as a critically impaired resource with high ecological and conservation value. Preservation of this unique natural resource is one of the main reasons for the creation of the FIIS. The Sunken Forest, primarily located behind the secondary dune of a barrier island, exists within a protected landscape with some human and animal disturbance. The Sunken Forest is 200-300 years old and appears to be holding steady at climax conditions. Trees on the dune ridges are pruned by wind exposure and salt spray and therefore do not exceed 30 feet in height. Very little understory exists due to browsing by the local deer population. The surrounding communities include maritime scrubland /successional maritime forest, scrub forest, maritime dunes, and highbush blueberry shrub swamp.

The bay shore area of the Sunken Forest is eroding at the rate of 12-24 inches per year. The loss of approximately 25 feet of shoreline over the last ten-year period is due to both natural forces and the structural interference of the marina and the perimeter bulkheads that protect the marina. Sand erosion along the bay side of the Sunken Forest occurs on the upper foreshore slopes through storm surges and excessive high tides. The sand that is pulled away from the upper

slope slips to the lower terrace and is eventually pulled away and out into the bay through wind and wave interaction. The upper slopes become newly vulnerable to erosion and the process begins all over again. Much of the sand eroded from the foreshore banks ends up filling sink holes created by dredging as well as new shoals. The marina's perimeter bulkheads exacerbate the process by contributing sand through leaching underneath the bulkheads, and by intercepting sand that might otherwise have been replenished down drift of the marina.



BOARDWALK IN THE SUNKEN FOREST

Maritime Beach

A 32-mile long maritime beach exists along the south shore of Fire Island from Democrat Point east to Moriches Inlet. The maritime beach grades into marine intertidal gravel/sand beach

oceanward and maritime dunes inland. The Federal Wilderness Area begins at the toe of the dune, rather than on the beach, and there is no driving at all in the designated wilderness. Only permitted Off Road Vehicles (ORV's) are allowed on the beach. Ranked S3/S4, the occurrence of maritime beach is considered to have high ecological and conservation value from a statewide perspective. Globally, it is ranked G5, indicating it is secure, but very rare in parts of its range. The maritime beach is located about one-quarter mile from Sailors Haven Marina.



EDGE OF SUNKEN FOREST OVERLOOKING INTERDUNAL SWALE; MARITIME BEACH IS BEYOND THE PRIMARY DUNE

B. Environmental Impacts

No Action Alternative

The north shore of Fire Island is a naturally erosive environment; thus the Sunken Forest will continue to lose shoreline on the bay side. Abatement of the accelerated erosion rates in this area due to the current marina design is not the objective of this project. The long-term impact related to the no action alternative is unknown.

Alternative A

Impacts are the same as the No-Action Alternative.

Alternative B

Impacts are the same as the No-Action Alternative.

4.9 Wildlife

A. Existing Conditions

Wildlife that uses open water areas and tidal zones surrounding the Sailors Haven Marina include gulls, terns, and shorebirds such as herring gull (*Larus argentatus*), common tern (*Sterna hirundo*), greater yellowlegs (*Tringa melanoleuca*), and sanderling (*Caladris alba*). Piscivores, such as double-crested cormorants (*Phalacrocorax auritus*) may also forage in the project area. In addition, ducks and geese, including scaups (*Aythya spp.*), scoters (*Melanitta spp.*), long-tailed ducks (*Clangula hyemalis*), and brant (*Branta bernicla*), feed in the area. In general, the nesting and breeding season for these avian species occurs during late spring through early summer.

Wildlife common in other areas of the park include migratory birds such as brown thrashers (*Orpheus rufus*), eastern towhees (*Pipilo erythrophthalmus*), warblers (e.g., *Dendroica spp.*), and sparrows (e.g., *Melospiza spp.*). Mammals found in the park include eastern cottontail rabbit (*Sylvilagus floridanus*), white-footed mouse (*Peromyscus leucopus*), red fox (*Vulpes vulpes*), and white-tailed deer (*Odocoileus virginianus*). Reptiles common in the park include hognose snake (*Heterodon platirhinos*) and black rat snake (*Elaphe obsoleta*). Common insects include ticks, grasshoppers, and butterflies. While these species are not expected to utilize the immediate project area, they could be found within the adjacent Sunken Forest vegetation community.

GSB also supports large concentrations of wintering waterfowl, particularly American black duck (*Anas rubripes*), brant (*Branta bernicla*), scaup (*Aythya spp.*), and red-breasted merganser (*Mergus serrator*). Harbor seals are occasionally sighted in winter on the ocean beach. In summer, GSB is an important feeding and nesting ground for terns, ducks and herons.

B. Environmental Impacts

No Action Alternative

No impacts are anticipated.

Alternative A

The dredging would have no impact on wildlife under this alternative.

Alternative B

The dredging would have no impact on wildlife under this alternative.

4.10 Vegetation

A. Existing Conditions

Within the marina area the only vegetation present consists of several patches of American beachgrass (*Ammophila breviligulata*), and some common reed (*Phragmites australis*) between the perimeter bulkheads. The remaining terrestrial habitat in the proposed area of impact for the

marina rehabilitation consists of sand picnic areas that are used extensively by Sailors Haven Marina visitors and boardwalks associated with the marina and visitor center.

Sections of maritime forest community are present along the shoreline areas. Typical vegetation in these communities includes pitch pine (*Pinus rigida*), black cherry (*Prunus serotina*), winged sumac (*Rhus copallinum*), red chokeberry (*Pyrus arbutifolia*), Virginia creeper (*Parthenocissus quinquefolia*), poison ivy (*Toxiconendron radicans*), bullbrier (*Smilax rotundifolia*) and grape (*Vitis sp.*). One notable vegetative community within the vicinity of the impact area is the Sunken Forest. The Sunken Forest is a maritime forest dominated by American holly (*Ilex opaca*), sassafras (*Sassafras albidum*), and shadbush (*Amelancier canadensis*). The Sunken Forest is 40 acres in size, over 250 years old, and is considered one of the most stable vegetative communities on Fire Island (ISFWS 1997; NPS undated). Maritime forests of this age and size are rare on Long Island, as well as on other barrier beaches in the region.

Littoral processes (described under the next section) have resulted in erosion around both the east and west picnic areas of Sailors Haven Marina, as well as along the shoreline stabilization areas, including the bay shore of the Sunken Forest. Particularly along the shoreline stabilization areas, roots are being undermined and vegetation is being lost into the bay. In the past 10 years, erosion in the Sunken Forest has become a concern. The affects of the project on littoral transport are discussed in more detail in Section 4.3 Littoral Processes.



WEST SAILORS HAVEN PICNIC AREA - AUGUST 2007



EAST SAILORS HAVEN PICNIC AREA - AUGUST 2007

B. Environmental Impacts

No Action Alternative

No impacts are anticipated.

Alternative A

The dredging portion of this project would have no impact on vegetation.

Alternative B

The dredging portion of this project would have no impact on vegetation.

4.11 Historic and Cultural Issues

A. Existing Conditions

The National Historic Preservation Act, as amended (16 USC 470 et seq.), NEPA, NPS Management Policies 2001, Directors Order #28: Cultural Resource Management Guideline

(1997), and Director's Order #12 require the consideration of impacts on cultural resources listed on or eligible for listing on the National Register of Historic Places. Cultural Resources include archeological resources, historic structure/buildings, and Indian trust resources.

The construction of Sailors Haven Marina pre-dates the establishment of the park in 1964. When originally constructed, the marina was surrounded and protected by the landmass of the barrier island itself; however Fire Island is a dynamic barrier island subject to natural processes and is essentially a large sandbar migrating westward. As a result of natural processes, the 300-foot wide and 260-foot long marina basin now projects north from the north shore of Fire Island into Great South Bay. The area of potential effect for this project has been manipulated and heavily disturbed and prehistoric or historic archeological resources are not anticipated.

Structural elements of the marina, piers, bulkheads, decking have all been modified and/or replaced over the years and are not historic. The NPS finds that there would be no historic properties affected in the implementation of this project. The New York State Historic Preservation Office (SHPO) concurred with this finding in their letter of "No Effect" dated September 18, 2007 (see Appendix B).

Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of the Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United States to protect tribal lands, assets, resources, and treaty rights, and represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native Tribes. There are no Indian trust resources in Fire Island National Seashore. The lands comprising the seashore are not held in trust by the Secretary of the Interior for the benefit of Indians due to their status as Indians.

B. Environmental Impacts

No Action Alternative

No impacts are anticipated.

Alternative A

The dredging would have no impact on historic and cultural issues.

Alternative B

The dredging would have no impact on historic and cultural issues.

4.12 Socioeconomic Environment

A. Existing Conditions

Two concessions authorized by the NPS operate in the Sailors Haven area. These concessions are the Sayville Ferry Service, which operates the ferries traveling from Sayville to Sailors Haven as well as ferries traveling to Cherry Grove and Fire Island Pines; and the Fire Island Concessions, LLC, which operates a snack bar and gift shop at the Sailors Haven Marina. The

Fire Island Concessions, LLC also acts as dock master at the marina, collecting slip fees for boats, which stay in the marina.

B. Environmental Impacts

No Action Alternative

Under this alternative, access into the marina by boat or ferry would remain restricted, and would likely become impossible over time. This would result in the loss of ferry concession by the Sayville Ferry Service, although some of the economic impacts may be mitigated by an increase in ferry passengers to Cherry Grove. If the marina closes, visitors wishing to visit the Sunken Forest Preserve may opt to take the ferry to Ocean Bay Park instead of Cherry Grove. Thus, gross receipts for Sayville Ferry Service would probably decline.

Additionally closure of the marina would result in the complete loss of slip fees for the Fire Island Concessions, LLC, and other concessions (snack bar and gift shop) would be affected by changes in visitation. Thus gross receipts for the Fire Island Concessions, LLC would decline under this alternative.

Alternative A

The dredging would have no impact on the socioeconomic environment.

Alternative B

The dredging would have no impact on the socioeconomic environment.

4.13 Visitor Use and Experience

A. Existing Conditions

Visitation to Sailors Haven Marina is highest in the summer, fewer visitors in spring and fall, and lowest visitation in the winter. Activities permitted within the project area are boating, fishing, swimming, walking on established trails, and picnicking. Visitation at Sailors Haven primarily occurs around the Sunken Forest and lifeguarded beach area, and most visitor use occurs on weekends, peaking from late morning to mid afternoon. Numerous school groups visit the marina during the week for educational programs at the Sunken Forest in the spring and fall. In addition to a one and a half mile long boardwalk trail through the Sunken Forest, Sailors Haven offers a visitor center, snack bar, gift shop, picnic tables, lifeguarded beach (summer only), a 48 slip marina with electricity and free pumpout, restrooms and bathhouse. Ranger-led interpretive activities are conducted daily throughout the summer months, and by reservation for schools and other organized groups (NPS 2007).

Table 3
FIIS Park Visitation Statistics

Year	Visitation
1993	639,741
1994	688,974
1995	348,788
1996	385,706
1997	534,888
1998	558,479
1999	559,764
2000	600,333
2001	661,692
2002	763,992
2003	629,858
2004	975,236
2005	821,149
2006	734,493

Source: NPS Park Statistics

Table 4
Sailors Haven Visitation Statistics

	Ferry	Marina	Boats at Anchor	Visitor Center	Total Visits
2007	23,196	29,262	28,210	16,365	97,031
2006	25,344	10,566	9,780	13,331	59,021
2005	30,814	16,913	12,725	12,692	73,144
2004	35,551	15,572	12,765	13,445	77,333
2003	27,969	9,684	9,045	13,555	60,253
2002	29,143	14,231	12,560	15,250	72,184
2001	25,033	11,127	17,595	12,342	66,097
2000	23,028	11,583	16,495	15,444	66,550
1999	27,371	10,713	16,295	15,546	69,925
1998	31,093	11,275	21,660	18,782	82,810
1997	32,886	13,702	25,955	22,772	95,315
1996	28,136	5,457	16,715	20,451	70,759

Source: NPS Public Use Statistics Office

Visitors arrive by either boat or ferry, and the marina is essentially full by mid morning on weekends when weather is favorable. School groups arrive by commercial ferry during the week, so there are no conflicts with other individuals coming by boat on the weekends.

Table 3 shows visitation trends throughout the national seashore. Prior to 2004 visitation peaked in 1994 and decreased substantially two years after. Visitation has been steadily increasing through 2004 where it peaked at 975,236 visitors. Since then visitation numbers have declined on average 15.3% in 2005 and 2006. Table 4 shows visitation numbers by ferry, marina, boats at anchor, and the visitor center have escalated in recent years.

There are no public roads within Fire Island National Seashore; visitors may explore the park on foot or transfer to other park sites via water taxis. Sailors Haven and Watch Hill units are dependent on water travel, and are generally open from May 15 to October 15 each year (NPS 2007).

B. Environmental Impacts

No Action Alternative

Should no dredging of the channel occur between 2007 and 2008, the channel may silt in sufficiently to close off access to most boat traffic and the passenger ferry from Sayville. This would result in almost no visitation of the Sunken Forest by the public. Visitation could become substantially less. Staff and volunteers who normally travel to the site by ferry would be impacted. Opportunities for visitors to enjoy, learn about, and gain appreciation for the resources would be diminished.

Under this alternative, safe access into the marina by boat or ferry would remain restricted, and would likely become impossible over time. Access by boats anchored outside the marina, and by foot traffic from the adjacent communities, would remain the same.

Alternative A

Under this alternative, access into the marina by boat or ferry would dramatically improve. The dredging of the access channel would allow access under optimal conditions; however, over time, the channel could see continued sedimentation and erosion problems.

Alternative B

Under this alternative, access into the marina by boat or ferry would dramatically improve, and be consistent over the 10-year period. By allowing dredging over a 10-year period, as needed, the access channel would consistently operate under optimal conditions. Shoreline stabilization will continue to protect picnicking areas, and, in the future, potentially create a perched beach area to further protect the shoreline and its vegetation.

4.14 Public Safety and Access

A. Existing Conditions

Public safety and access issues relate to the ability of the pleasure boats and the passenger ferry to get into and out of the Sailors Haven Marina. Siltation of the entrance channel results in boats becoming grounded at low tide. Since part of the channel is already impacted, buoy markers have been set to keep boats out of the part of the channel with the lowest depth. The channel

into the Marina is expected to continue to silt over the next year potentially making the entrance impassible.

B. Environmental Impacts

No Action Alternative

The severity of a negative impact will be great since it will result in the increased hazards related to low depth and the eventual closing of the channel.

Alternative A

A positive result will occur since the low depth hazard is eliminated and access to the Marina, Visitor Center and Sunken Forest is unimpaired.

Alternative B

A positive result will occur since the low depth hazard is eliminated and access to the Marina, Visitor Center and Sunken Forest is unimpaired over an extended period of time.

4.15 Unavoidable Adverse Impacts

No Action Alternative

The No Action Alternative would result in a decrease in channel navigability until the channel becomes impassible. This may occur as soon as by summer of 2008. If the channel were closed, the 60,000-100,000 annual visitors, including 5,000-10,000 school children, would not have access to this important natural resource. In addition, the NPS derives a portion of its management funds as a percentage of the concessionaire's profits from the marina, snack bar and gift shop.

Alternative A

The project will result in temporary changes in the distribution of finfish during the dredging operation. In addition, it will result in the temporary loss of the benthic community, which is made up of organisms that live in and on the bottom of the bay floor. Following the completion of the dredging project, the benthic community will reestablish naturally. The impacts associated with the project as described above are all short-term and temporary.

Alternative B

The project will result in temporary changes in the distribution of finfish during the dredging operation. In addition, it will result in the temporary loss of the benthic community. Because this alternative will result in multiple dredging operations of the same area, the benthic community will not likely have the opportunity to completely restore itself to its pre-dredging level.

4.16 Cumulative Impacts

Under NEPA law and NPS policy, potential cumulative impacts should be described in this section. The term "cumulative impacts or effects" is generally used to describe the phenomenon of changes in the environment that result from numerous human-induced, small-scale alterations.

No Action Alternative

The cumulative effect of no action will have an immediate and devastating impact on the ability to deliver visitors to the Sailors Haven Visitor Center and the Sunken Forest.

Alternative A

No impacts are anticipated.

Alternative B

The long-term routine dredging operations associated with Alternative B could result in the temporary loss of the benthic community in the immediate area of dredging.

SECTION 5.0 ENVIRONMENTALLY PREFERRED ALTERNATIVE

Under NPS policy, the alternative analyzed that would be most beneficial for the environment or have the least adverse impacts should be identified. Of the alternatives selected, the Preferred Alternative is also the Environmentally Preferred Alternative. Table 5 below outlines the impact findings under each alternative considered.

For the purposes of this analysis, intensity or severity of the impact is defined as follows:

- © Negligible: Impact to the resource or discipline is barely perceptible and not measurable, generally confined to a small area or a point in time.
- © Minor: Impact to the resource or discipline is perceptible and may be measurable, generally impact is confined to specific areas within the site.
- © Moderate: Impact is clearly detectable and could have appreciable effect on the resource or discipline throughout the site.
- © Major: Impact would have a substantial, highly noticeable influence on the resource or discipline throughout the site and surrounding lands.
- © Positive: Impacts would promote the preservation of the resource.

Table 5
Comparative Summary of Environmental Impacts

Type of Impact	No Action Alternative	Alternative 1	Alternative 2 Environmentally Preferred
Soil & Shoreline Erosion	None	Minor	Minor
Littoral Processes	None	Moderate	Moderate
Water Quality	None	Minor	Minor
Fisheries & Habitat	None	Minor	Minor
Floodplains & Wetlands	None	None	None
Species of Special Concern	None	Negligible	Negligible
Places of Special Concern	None	Negligible	Negligible
Wildlife	None	None	None
Vegetation	None	None	None
Historic & Cultural Resources	None	None	None
Socioeconomic Environment	None	None	None
Visitor Use & Experience	Moderate	Positive	Positive
Public Safety & Access	None	Positive	Positive
Unavoidable Adverse Impacts	Negligible	Negligible	Negligible
Cumulative Impacts	Moderate	Negligible	Negligible

SECTION 6.0 NON-IMPAIRMENT

In addition to determining the environmental consequences of the preferred and other alternatives, the 2001 NPS Management Policies and DO-12 require analysis of potential effects to determine if actions would impair Fire Island National Seashore resources.

Under the NPS Organic Act of 1916, current Policies and Director's Orders, Park and other units of the National Park System are to be managed to preserve their scenic, natural and cultural resource values so as to leave them unimpaired for the enjoyment of future generations. This establishes a "non-impairment" standard that prohibits NPS officials from allowing any Project or use that would impair Park resources and values, as deemed significant in the Park's legislative enactment, focused on in the Park's mission statement and addressed in the Park's GMP. The determination of impairment rests with the professional judgment of the given Park's manager, consistent with the Park's legislation, purpose and mission, NPS Policies and Orders, as well as the Park's GMP.

The National Environmental Policy Act (NEPA) requires the National Park Service (NPS) and other Federal agencies to conduct a formal environmental review process on proposed Projects prior to decisions on their implementation. This process is designed to disclose and analyze the purposes and needs for the Project, the potential alternatives to and impacts from the Project, and provide for public involvement. Full public review of the Environmental Assessment (EA) will be made available in accordance with the regulations contained in NPS's Director's Order #12, "Conservation Planning, Environmental Impact Analysis, and Decision-Making."

The National Park Service believes that the Preferred Alternative in this EA would not cause impairment to Park resource values. The Project is consistent with relevant Federal laws and Fire Island National Park's 1978 General Management Plan.

SECTION 7.0 ENVIRONMENTAL JUSTICE

Under NPS policies, the environmental review of proposed projects should include consideration of “environmental justice” issues. These are issues that relate to whether the Project would harm or disproportionately affect socio-economically disadvantaged groups of people.

Alternatives A and B represent actions that are consistent with FIIS policies. The project will provide continuity of access to the Sailors Haven Visitor Center and the Sunken Forest. If access is limited to only those that can reach it through the private communities on Fire Island or those with private boats that can anchor offshore, the No Action Alternative could result in certain non-boating populations, including school children, to being shut out of this important public resource.

SECTION 8.0 COMPLIANCE / PERMIT REQUIREMENTS

- © NYSDEC – Permit #1-4722-04114/00004, is good through 2012 and includes the proposed channel dredging. NYSDEC permits dredging: **October 1 - May 30.**
- © ACOE – Nationwide 3 & 35 Permit #2001-01329-3-L6 is good through 11/17/07 and will be extended based upon NYSDOS sign off.
- © NOAA Essential Fish Habitat (EFH) determination: **October 1-January 31.** EFH may extend this window to the end of February. Concern is spawning shellfish or finfish. EFH – will likely not need to respond or provide letter of “no effect”.
- © NYSDOS – Considers the project a “direct activity” that DOS can sign off as a “modification” to the action approved previously. Following request for such, DOS will send a letter of “no objection”. Utilize Reference #: F-2005-0216 (DA) (see attached email sent to DOS on 8/31/07).
- © NYSDOS letter of Consistence Determination will serve as support for NPS and any other federal actions. The project will advance State policies and will therefore meet Federal objectives as well.

The Federal laws, Executive Orders and regulations, along with associated State and local regulations that must be fulfilled before the Project may be implemented are summarized below.

National Environmental Policy Act (NEPA)

This EA assesses impacts and proposals pursuant to the requirements of the National Environmental Policy Act (NEPA). NEPA requires that Federal agencies assess their proposals for a full range of impacts on the natural and cultural environments, and that alternatives are provided and analyzed to decide whether the Preferred Alternative could have a significant effect on the human environment. This document is to be released for public and agency review for 30 days, after which the National Park Service would decide if the proposed actions are significant enough to require a preparation of an Environmental Impact Statement (EIS). If so, a notice of intent to prepare an EIS would be prepared and announced in the Federal Register. If no EIS is required, the Regional Director may sign a Finding of No Significant Impact (FONSI), which concludes NEPA compliance for this plan and clears it for funding and implementation.

Endangered and Threatened Species

Section 7 of the Endangered Species Act requires the National Park Service to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out does not jeopardize the continued existence of listed species or critical habitat. The Service has been consulted concerning the presence of listed species and critical habitat.

The New York State Environmental Conservation Law contains definitions for NYS Threatened, Endangered, Special Concern Species, and Protected Species. Native plant life is further protected under 6 NYCRR Part 193.3, which defines the number of plants to be found on sites on the United States Geologic Survey (USGS) 7 ½ minute series maps, or listed Federally. It also

defines the term “colony” for plant species. NYS Department of Environmental Conservation administers the State’s non-game and endangered (animal and plant) species program. The department has been consulted concerning endangered or threatened species and critical habitats.

Cultural Resources Compliance

The National Historic Preservation Act of 1966, as amended, is the cornerstone of Federal historic preservation law. It established a national policy of historic preservation that provides for identification and protection of historic and archeological resources.

Section 110 of the act requires that government agencies carry out their programs in accordance with, and in furtherance of, national historic preservation policy and that such agencies identify and preserve historic properties under their ownership or control.

Section 106 of the act requires that government agencies take into account the effects of their actions on historic properties and afford the Advisory Council on Historic Preservation an opportunity to comment on those actions.

Executive Orders 11988 and 11990, Floodplain Management and Wetland Protection

These executive orders direct NPS to avoid, to the extent possible, the long and short-term adverse impacts associated with modifying or occupying floodplains and wetlands. They also require NPS to avoid direct or indirect support of floodplains or wetland development whenever there is a practical alternative. A statement of findings, usually filed with the finding of No Significant Impact (FONSI) or the Record of Decision (ROD), is not anticipated for this project

Clean Water Act of 1972, as amended (CWA) (33 USC 1251-1387)

The US EPA has the responsibility for oversight and review of permits and actions that affect waters of the US. The USACOE is charged with evaluating Federal actions that result in potential degradation of waters of the US and issuing permits for actions consistent with the CWA. Since no placement of fill will take place for the Project, no Section 404 Permit from the USACOE is necessary.

Construction activities that commence on or after March 10, 2003 and disturb one or more acres of land must obtain coverage under the Phase II SPDES requirements. A SPDES General Permit for Stormwater Discharges from Construction Activity (GP-02-01) would be required. The Project site disturbance will be less than one acre and, therefore, does not require a permit.

The National Pollution Discharge Elimination System has essentially the same set of standards. The Project will not discharge to surface waters and the proposed site disturbance is less than one acre, therefore, no permit is required.

State Environmental Quality Review Act (SEQRA)

NEPA requires that an EA be prepared when a proposal may have a measurable impact on the environment. If the completed EA shows that the proposal may have a significant effect, an EIS is also required. The NEPA EA will replace the need for the NYS SEQRA requirements of a Short Environmental Assessment Form.

ADA Compliance

The Project will comply with the 2002 Federal Accessibility Guidelines for Buildings and Facilities.

SECTION 9.0 PUBLIC INVOLVEMENT

This EA is being placed on formal public review for 30 days and will be distributed to a variety of involved or interested agencies, including those listed under Section 10.0 Consultation and Coordination.

SECTION 10.0 CONSULTATION AND COORDINATION

The conceptualization and development of this project occurred in a very short time because of the marina entrance channel conditions that occurred last spring. It did involve NPS Park staff, other governmental officials, and consultants.

Internal scoping was held in August 30, 2007 and involved federal, state and local agencies to assist in the determination of areas in which the EA should focus and help identify potential environmental impacts associated with the project.

The agencies listed below were contacted and or consulted during preparation of this EA:

- © U.S. Fish and Wildlife Service, Long Island and Cortland Field Offices
- © U.S. Department of Commerce, National Marine Fisheries Service
- © New York State Office of Parks, Recreation and Historic Preservation
- © New York State Department of Environmental Conservation, Natural Heritage Program
- © New York State Department of State, Coastal Management Program

Letters of consultation and coordination from the consulting agencies can be found in Appendix B.

The Regional Director of the National Park Service will review this EA and approve its distribution for public comment. A news release will be sent to local media contacts announcing the availability of this EA through the NPS Planning, Environment and Public Comment (PEPC) website. Copies of this EA will also be sent to relevant Federal, State, and local officials, local libraries, and a list of organizations that have expressed a strong interest in issues affecting Fire Island National Park. Upon request, copies will be sent to other interested people. No public meetings for this project are being considered.

This EA will also be an informational or base reference to specific requests for action concurrences under the National Historic Preservation Act as indicated in the following Section 12. All comments received on this EA will be carefully reviewed.

After this review, the Regional Director will either: approve a Finding of No Significant Impact (FONSI) and end the National Environmental Protection Act (NEPA) compliance process; or find that one or more significant impacts may occur and, therefore, an Environmental Impact Statement (EIS) must be prepared and distributed for public comment.

SECTION 11.0 LIST OF PREPARERS AND REVIEWERS

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SECTION 12.0 REFERENCES AND INFORMATION SOURCES

Art, H.W. 1976. Ecological Studies of the Sunken Forest, Fire Island National Seashore, New York. National Park Service Ecological Monograph Series #7. U.S. Department of the Interior, National Park Service, D.C. 236 pp.

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U.S. Department of Commerce, 1999. Essential Fish Habitat Source Document: Winter Flounder, *Pseudopleuronectes americanus*, Life History and Habitat Characteristics. NOAA Technical Memorandum NMFS-NE-138. Northeast Fisheries Science Center, Woods Hole, MA. 6 pp.

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List of Appendices

- Appendix A List of Acronyms
- Appendix B Letters of Record and Documentation
- Appendix C DO-12 Environmental Screening Form
- Appendix D Coastal Zone Management Policies